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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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BOWDITCH & DEWEY, LLP  
311 MAIN STREET  
P.O. BOX 15156  
WORCESTER, MA 01615-0156

EXAMINER
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KERVEROS, JAMES C

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/834,040

Applicant(s)

SEWARD ET AL.

Examiner

JAMES C. KERVEROS

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) 1-4 and 9-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-8 and 40-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## **DETAILED ACTION**

### ***Response to Amendment***

Applicant's petition, filed on 4/18/2005, to revive the above-identified abandoned application under 37 C.F.R. 5 1.137(b) has been GRANTED.

This is a FINAL Office Action in response to Amendment filed 4/18/2005.

### ***Continued Examination Under 37 CFR 1.114***

Applicant's submission for a request for continued examination under 37 CFR 1.114 filed on March 8, 2004 has been entered.

### ***Response to Election/Restrictions***

Claims 1-4 and 9-39 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species. Election was made without traverse for claims 5-8.

Claims 1-45 are pending in the application.

Claims 5-8 and 40-45 are under examination.

### ***Response to Arguments***

Applicant's arguments filed 4/18/2005 have been fully considered but they are not persuasive.

Regarding independent Claim 5, Applicant argues that in the Nagata reference the contents of the "container" 35 is not the material being measured. Rather the components 20, 22, 38 that are within "container" 35 constitute the device that being used to measure a material 48 that is resting on top of the container 35. There is no

teaching in Nagata regarding a sensor that transmits a signal through the container to measure the contents thereof.

In response to the above arguments, the Examiner notes that the container 35 (cylindrical shield case) contains a material 48 (sample) placed within the container 35 on the opening part, as shown in Figures 8, 14 and 15). In reference to Figure 8, Nagata describes, "in the dielectric resonator 20, its upper surface is set substantially flush with an edge of the opening of the shield case 35, and a sample is placed on the opening part of the shield case 35. Orientation of the dielectric constant of the sample can be measured by rotating the sample in a horizontal plane in the opening part or rotating the dielectric resonator 20 in a horizontal plane". With respect to Figures 14 and 15, Nagata describes, "a sample 48 is arranged in approximation to the upper surfaces of the shield case 35 and the dielectric resonator 20. The sample 48 is measured by rotating the dielectric resonator 20 and the shield case 35". Therefore, the sample is part of the container located in the upper surface of the container. According to Nagata, there is nothing to suggest the sample is outside the container. Contrary, the sample is an integral part of the container located on the opening part of the shield case 35.

The sample is not limited to only one position, as shown in Figure 14, with respect to the container. For, example, in another embodiment, Figure 2 shows a sample 10 situated within a housing between a pair of dielectric resonators 12a and 12b opposite to each other. It is clear, that a person skilled in the art could rearrange the sample in a container accordingly, for the purpose of measuring the dielectric properties of the sample, by rotating the dielectric resonator.

In response to Applicant's argument, that a sensor transmits a signal through the container to measure the contents, it is noted that the features upon which applicant relies (i.e., transmits a signal through the container) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Instead, the Applicant recites "a container having a material within the container to be measured", which is too broad in scope, and therefore it fails to overcome the prior art rejection.

Rejection of claims under the prior art is still maintained as set forth in the prior Office Action mailed 4/20/2004, which is included in its entirety, below.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 5, 8 and 42-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Nagata et al. (US 6396288), filed: September 8, 1999.

Regarding Claim 5, Nagata discloses a dielectric resonator device having a plane being close to a sample for measuring the dielectric properties of the sample, comprising:

A container, such as a cylindrical shield case (35, FIG. 8), which has a material (sample, 48, FIG. 14) placed within the shield case (35) on the opening part.

A microwave source (oscillator, 26, FIG. 3A).

An antenna (dielectric resonator 20) having a plurality of resonant modes coupled to the microwave source (26) through the loop antennas (22a, 22b) connected with respective connectors (34a, 34b) through the semi-rigid cables (36a, 36b) and connected to an oscillator, FIG. 8.

The antenna 20 generates an electromagnetic signal with polarization components, such as Traverse Electric and Magnetic fields, TM or TE mode originating from the source 26, when the dielectric resonator 20 is square, and an HEM mode when the antenna is cylindrical.

The antenna (resonator 20) is spaced apart from the material (sample, 48) within the container 35, with an air gap space between the sample and the antenna (resonator 20), as shown in more detailed in FIG. 14, for measuring the dielectric property of the sample.

A microwave detector (28, FIG. 3) for detecting microwave intensity which is the signal magnitude, and the variance of the resonance frequency which is measured as the frequency shift quantity and which by definition is proportional to the phase shift, ( $F=1/2\pi\omega$ ), where  $\omega$  is the phase angle.

Regarding Claim 8, a square resonator whose sample measuring surface is square or rectangular as the dielectric resonator, where linear bar-like rod antennas are superior to loop antennas in uniformity of directions of electric field vectors in a measured in-sample plane as terminals of a microwave exciter and a detector. This is described with reference to FIG. 16 to FIG. 20.

Regarding Claim 42, Nagata discloses a circularly polarized antenna (dielectric resonator 20), which generates polarization components, such as an HEM mode when the antenna is cylindrical.

Regarding Claim 43, Nagata discloses two different resonant frequencies, (FIG. 10A) shows a resonance peak at a microwave frequency of 5070.2 MHz, when placing no sample and (FIG. 10B) shows a resonance frequency in the case of placing a sheet of paper as the sample, since the resonance frequency varies when the sample or resonator (20) is rotated and also by the dimensions and the dielectric constant of the dielectric resonator 20.

Regarding Claim 44, Nagata discloses directional coupler (34a) between the source oscillator 26 and the antenna dielectric resonator 20.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

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Patentability shall not be negated by the manner in which the invention was made.

Claims 40 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagata et al. (US 6396288).

Regarding Claims 40 and 41, Nagata does not disclose bottle container containing fluid to be measured. However, he discloses a dielectric resonator device including a container cylindrical case (35, FIG. 8), which contains a sample (48, FIG. 14), for measuring the dielectric property of the sample, such as a polymer sheet including a film and paper and stereoscopic articles such as moldings of plastic, resin, rubber using microwave, where the solid polymer is solidified from a fluid or liquid state. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to add a fluid sample in the container of Nagata for the purpose of measuring the dielectric property of the fluid, since the dielectric resonator device of Nagata measures a sample in a solid or liquid state.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagata et al. (US 6396288) in view of Michaels in (US 5371505).

Regarding Claim 6, Nagata does not disclose a radome defining the air gap between the antenna and the material. A radome is well known protective housing used to house radar antenna, as defined by Webster's Dictionary. Further, Michaels in (US 5371505) discloses a radome 10, which creates an air gap between an antenna 12 housed inside the radome and a material (reflector 14), as shown Figure 1. It would have been obvious at the time the invention was made to a person having ordinary skill



in the art to house the antenna (dielectric resonator 20) of Nagata with the radome, as taught by Michaels, for the purpose of maintaining a dielectric air gap between the material and the antenna, since the spacing of material from the radome wall is successively changing where the received data for the material is used to derive signal transmission characteristics.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagata et al. (US 6396288) in view of Davidov (US 5781018).

Regarding Claim 7, Nagata does not explicitly define air gap spacing within  $2.5 \lambda$  of the sensor. However, Nagata defines an air gap space between the sample and the antenna (resonator 20), as shown in more detailed in FIG. 14, for measuring the dielectric property of the sample. Further, in an analogous art, Davidov defines an air gap between the antenna and the material to "be limited to not substantially more  $\lambda/10$ ", where  $\lambda$  is the free-space microwave wavelength  $\lambda_0$  reduced to account for the dielectric constant of the spacing (Column 7, line 41-46). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to select a microwave wavelength  $\lambda_0$  parameter representing the free-space, as taught by Davidov, which would be a suitable air gap space between the sample and the antenna of Davidov, so as to perform reliable dielectric measurement of the sample taking into consideration the dielectric constant of free-space.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES C. KERVEROS whose telephone number is (571) 272-3824. The examiner can normally be reached on 9:00 AM TO 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Randolph Building, 401 Dulany Street,  
Alexandria, VA 22314  
Tel: (571) 272-3824, Fax: (571) 273-3824  
[james.kerveros@uspto.gov](mailto:james.kerveros@uspto.gov)

Date: 16 August 2005  
Office Action: Final Rejection

JAMES C KERVEROS  
Examiner  
Art Unit 2133

By: 

  
JOSEPH TORRES  
PRIMARY EXAMINER